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Popular Article

Constraints of camel farming in arid and semi-arid zones of India

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Abstract

Since the beginning of time, camels have been an essential part of the desert ecology and are known as the "Ship of the desert." The camel's special adaptive traits allow it to endure in hostile environments. Some of the important adaptive features that need to be studied to understand adaptation mechanisms include the following: a robust mouth, long eyelashes, long ear hairs, sealable nostrils, a humped body, oval and osmotically resistant red blood cells, the capacity to withstand temperature changes, the ability to thrive without water, widened feet, and the capacity to pace both legs of the same side at the same time. Under extreme starvation situations, they can withstand up to 20–22% of body weight reduction (water loss), but other animals, such cattle and buffalo, cannot withstand more than 10–12% of body weight loss.

Keywords: Key constraints, Efforts taken by the Government of Rajasthan

Introduction

With the exception of a tiny number of Bactrian camels in central Asia, the majority of camels worldwide are dromedary types. The FAO estimates that there are 35 million camels worldwide, 2.5 lakh of which are in India (Simenew et al., 2013). In comparison to the 19th Livestock Census (2012), the overall camel population has decreased from 400 thousand to 252 thousand in the 20th Livestock Census (2019). In comparison to the 19th Livestock Census (2012), the percentage of camels has decreased from 22.63 to 37.05 in the 20th Livestock Census (2019). Rajasthan has the largest camel population in India, estimated at 2.13 lakh, however it saw a significant decrease of 34.96% from the Census of 2012. Rajasthan is home to over 84% of India's surviving camel population. A well-fed camel is thought to be able to carry six months' worth of energy on its back. The dromedary camel (*Camelus dromedarius*)

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may only drink every eight to ten days in extremely hot weather, and it may get dehydrated to the point of losing up to thirty percent of its body weight. The so-called "white gold" of the desert, camel milk, is different from other ruminant milk in that it has high vitamin C content, low sugar, low cholesterol, and high levels of minerals (sodium, potassium, iron, copper, zinc, and magnesium), as well as protective proteins like immunoglobulins, lactoferrin, and lactoperoxidase. These characteristics make camel milk more similar to human milk than any other type of milk.

Comparatively speaking to other domestic animals, little is known about the camel's production capacity and systems, despite the fact that it plays a significant role in agro-pastoral systems in large pastoral areas of Asia and Africa and contributes significantly to food security in semi-arid and dry zones. A livestock system centered around camels will increase local rural residents' income and provide jobs. The camel, known as the "beast of burden" in the desert, has several uses outside of just pulling loads. It may be utilized for milk, meat, wool, transportation, tourism, and even national security. Equestrians ride and race camels. Though it can survive on limited resources in harsh climates, camels are also used as an auxiliary in agriculture for tasks like plowing, water extraction, planting, harrowing, etc. The camel population is declining significantly (Ahmad et al., 2010). Among the most significant livestock species in India's semiarid and arid regions are camels. Throughout India's dry and semi-arid regions, camels are integral to the pastoral and agricultural systems and play a significant socioeconomic role. The livelihood of pastoralists and agro-pastoralists residing in delicate habitats is greatly reliant on camels.

Key constraints faced by camel farmers Rajasthan

The livelihoods of farmers and the long-term viability of the camel business are impacted by the particular difficulties and limitations that come with camel farming in Rajasthan, India. This is a summary of the in. A multitude of issues affect camels, such as the high incidence of illnesses and insufficient medical facilities, the scarcity of feed, overcrowding, and the deterioration of rangelands. Due to deterioration, recurring droughts, and population pressure, this area's rangeland is characterized by a scarcity of pasture and water. Because the livelihood of pastoralists depends on unstable weather patterns, border and marginal regions, and conflict, pastoralists are inherently risk-averse.

Constraints of camel farming are as follows:

1. **Harsh Climate**: Rajasthan is renowned for its harsh weather, which includes sweltering summer heat and bitterly freezing winters. The health and production of the camels are

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negatively impacted by these severe climate changes, which provide serious issues for camel husbandry.

2. **Water Scarcity**: Water shortage is a common occurrence in Rajasthan's arid and semi-arid regions, making it challenging to provide camels enough to drink, particularly during the dry seasons. Insufficient availability of water sources impedes the expansion and advancement of camel rearing in the area.
3. **Grazing Land Availability**: There is less grazing ground available for camels due to growing agricultural growth and urbanization. The restriction of camel herds' mobility and their availability to natural fodder due to encroachment on traditional grazing sites affects the amount of nourishment that the animals consume.
4. **Lack of Government Support**: Although camels have a long history in Rajasthan, there is a perception that the government does not promote or invest in camel husbandry. A lack of finance for breeding programs, infrastructure, and research prevents the camel business from growing and modernizing.
5. **Limited Market Access:** There are restrictions on the supply and demand for camel-derived goods such milk, meat, and wool. The industry's potential for expansion is hindered by weak market connections and little customer knowledge of the economic and nutritional advantages of camel products.
6. **Predation:** Predation by wild animals, such as wolves and jackals, poses a constant threat to camel herds, leading to livestock losses and economic hardships for farmers. Protecting camels from predators requires additional resources and vigilance.
7. **Traditional Practices**: Although camel farming has been supported by customs and knowledge for many years, contemporary methods for management, healthcare, and breeding must be incorporated. The implementation of modern farming methods is impeded by reluctance to change and restricted training opportunities.
8. **Livelihood Diversification**: Economic pressures and changing social dynamics have led some traditional camel herders to seek alternative livelihoods, resulting in a decline in the number of skilled camel farmers. This trend threatens the preservation of indigenous camel-rearing knowledge and practices.
9. **Animal Health Challenges**: Camels are susceptible to various diseases and health issues, including parasitic infections and nutritional deficiencies. Limited access to veterinary services and vaccines exacerbates the health challenges faced by camel farmers.

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10. **Cultural Shifts:** Changing lifestyles and preferences among younger generations have led to a reduced interest in traditional occupations like camel farming. Preserving cultural heritage and encouraging youth involvement in camel rearing is essential for the sustainability of the industry.
11. **Shortage of feed**: It has become difficult for camel rearers to provide fodder to camels due to restrictions in forests areas.
12. **Shortage of browsing area**: Grazing lands have declined due to establishment of Indira Gandhi Nahar Sinchaii Project in Badmer, Bikaner, Churu, Hanumangarh, Jaiselmer, Jodhpur and Sriganganagar districts of Rajasthan. These grazing lands were the main fodder source for camel.
13. **Lack of interest in the young generation**: The younger generation of camel rearers are moving away themself from the camel husbandry practices due to their higher educational status and little scope in camel rearing.
14. **Sale of milk and male animal**: The constraints of the camel milk business in terms of demand. The industry's ability to expand is restricted by weak market connections and little customer knowledge of the financial and nutritional advantages of camel milk. With the passage of the "Rajasthan Camel (Prohibition of Slaughter and Regulation of Temporary Migration or Export) Bill, 2015," the Rajasthani government designated camels as its state animal. The 2015 Rajasthan Camel Act forbids camel killing as well as temporary departure from the state and evacuation. The passage of this measure has made interstate camel trade illegal.
15. **Resistance of society during browsing**: Many person of society create lots of problem during browsing of leafy tree in field and forest area. Some forest in browsing and grazing of livestock is prohibited.
16. **Distance to grazing and water resource**: due to lack of availability of fodder and water required distance grazing and watering for camel.
17. **Reduced utility of camel**: The value of camels in the agricultural sector has decreased due to increased automation. According to Dhawal et al. (2021), one major obstacle facing the districts of Bikaner and Jaisalmer is the declining usefulness of camels as a result of mechanization in agriculture activities and transportation networks. The majority of the interior regions are connected by pakka roads, and the reliance on camels for mobility is progressively decreasing. Instead of employing camels for transportation, many choose to use vehicles.

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Despite these obstacles, camels' ecological, cultural, and economic significance in Rajasthan is becoming more widely acknowledged. The region's camel farming industry may be revitalized by initiatives to solve these issues through sustainable land management, better water availability, market development, capacity building, and governmental assistance. Maintaining the resilience and success of camel husbandry in Rajasthan requires embracing new ideas while honoring conventional wisdom.

The efforts taken by the Government of Rajasthan are as follows:

i. The State has developed an organized camel milk or camel dairy market.

ii. The State Government of Rajasthan launched the Camel Conservation Scheme, which would encourage the production of camel calves, in response to the ongoing decline in the camel population. Camel rearers will get a total of Rs. 10,000 under this plan in two installments (for each calf born at the age of 0-2 months and 1 year).

iii. The state of Rajasthan has passed and implemented "The Rajasthan Camel (Prohibition of Slaughter and Regulation of Temporary Migration or Export) Act, 2015" to outlaw the killing of camels and to govern their export or temporary migration.

iv. The Rajasthani government distributes free medications and offers free medical examinations and treatment through its hospitals, sub-centers, and mobile units.

v. The Rajasthani government designated the camel as an official state animal in 2014 in an effort to preserve the declining camel population.

vi. The National Research Centre on Camel, Bikaner, and Lokhit Pashupalak Sansthaan, Saaddi, Paali are attempting to increase public awareness of camel milk by producing processed milk products including flavored milk and ice cream.

vii. The National Institute of Engineering & Technology (NIET), Kolkata, and the National Research Centre on Camel are collaborating on the application of camel hair in conjunction with jute.

viii. It is being investigated how to prepare fiber-rich camel dung for handmade papers and bricks.

ix. In March 2021, 340 health camps were held by the Rajasthani government's Animal Husbandry Department, treating 21,600 camels for the Surra sickness. Camel rearers received training as well.

The Government of India has established National Research Centre on Camel (NRCC) in 1984 under the aegis of Indian Council of Agricultural Research in Bikaner, Rajasthan to promote research and development on camels. It has conducted basic and applied research work both

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on one and double humped camel and the work will help to protect the interests of camel breeders.

Conclusion

The primary factors affecting camel health in the research region were the widespread development of illnesses, primarily caused by fungi, bacteria, and parasites. Growth retardation, decreased meat/milk output, and decreased body condition were the main effects of camel illnesses that were found. Lack of feed and water was the other factor impeding camel output. The restricted availability of grazing pasture, the high cost of feed and fodder, infectious illnesses, and the modernization of agricultural operations and transportation systems all contributed to the decreased use of camels and discouraged their owners from pursuing the traditional profession of camel farming. It is imperative that we pay attention and create a proper policy or plan for expanding pastureland. Look out other ways to use camels.

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